# REPORTS ON THE MARGARET M. CARY-CARNEGIE MUSEUM EXPEDITION TO BAJA CALIFORNIA, MEXICO, 1961

## 6. The Subfamily Ennominae (Geometridae: Lepidoptera)

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*This is the sixth of a series of papers based on the Margaret M. Cary-Carnegie Museum Expedition to Baja California, Mexico, to appear in the Annals of Carnegie Museum. For an account of the itinerary and description of localities, see the first paper in this series [Richard M. Fox, Ann. Carnegie Mus. 36 (16): 181-192].*

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The Expedition caught a total of 354 specimens representing 45 different species and subspecies that belong to the Ennominae. These were caught on the peninsula and the mainland. All, with one exception, have been placed at least to genus. The one exception is a single, rather worn female from Arroyo San Bartolo, Baja California, November 1, 1961 (genitalic slide F.H.R. No. 12,611). Apparently it belongs in the Cleorini; a male is necessary for accurate placement. This species is not included in the text of this paper.

In the Territory of Baja California Sur 32 species were taken. Of these, five are uncertain as to species. Of the remainder, three are endemic to the peninsula. Two of these three are species of nearctic genera and the third is a new subspecies of a widely ranging neotropical species. The faunal relationships of the Ennominae of Baja California Sur are strongly nearctic, as 22 of the species are northern, whereas only three belong to present-day neotropical species.

Two new species, one a peninsular endemic and the other occurring around the Gulf of California in both Sonora and Baja California, are described in this paper. Two new subspecies of the widely ranging *Thyrinteina arnobia* (Stoll) are also described. One is from western Mexico and the other is an endemic population in the Territory of Baja California Sur.

Issued Dec. 31, 1969

A word of caution is necessary regarding some of the generic and specific names used in this paper. A number of the names can be relied on with confidence; these are ones that have been included in modern revisionary studies (Rindge, 1959a, 1959b, 1961, 1966) or are species that occur in the United States. Many of the remaining names should be considered as being tentatively applied, pending revisionary studies of the groups concerned.

Abbreviations of museum names used frequently in this article are: AMNH, the American Museum of Natural History; CM, Carnegie Museum.

## Subfamily ENNOMINAE

### *Ixala klotsi* Sperry

*Ixala klotsi* Sperry, 1940: 146.

A single battered specimen is placed here, based primarily on a study of the genitalia. The species was described from Arizona.

BAJA CALIFORNIA SUR: Bahia de Palmas, Oct. 24, 1961, 1♀ (CM).

### **Pterospoda kinoi,** new species

Figs. 1, 2, 7, 8

An undescribed species of *Pterospoda* occurs around the Gulf of California, and it is apparently seasonally dimorphic. The spring generation is large and has a pinkish brown upper surface, whereas the summer generation is smaller and the males, in particular, have much more ochraceous wings.

MALE, SPRING GENERATION: Head with vertex creamy white, becoming dark gray above front; front brownish gray; palpi brownish gray or grayish brown. Thorax pinkish gray or brownish gray above, with collar tending to be slightly darker; whitish below; legs grayish white, fore and middle legs dark gray on outer surfaces. Abdomen dull pinkish gray above, with scattered brownish gray scales; paler below.

Upper Surface of Wings: Forewings grayish brown, suffused with pink, with veins and subterminal area pinkish; cross lines obsolescent; t. a. and median lines, when present, nebulous and proceeding across wing at right angle to inner margin; discal dot black, small; t. p. line, when present, slightly more sinuous than other lines; s. t. line weakly represented, black, outwardly angulate in cells, shaded outwardly by white, with angulations broadly filled in with pink; terminal line absent, intravenular spots black; fringe concolorous with wing. Hind wings concolorous with forewings; maculation obsolescent except for s. t. line, similar to that of forewing; discal dot absent. (See fig. 1.)

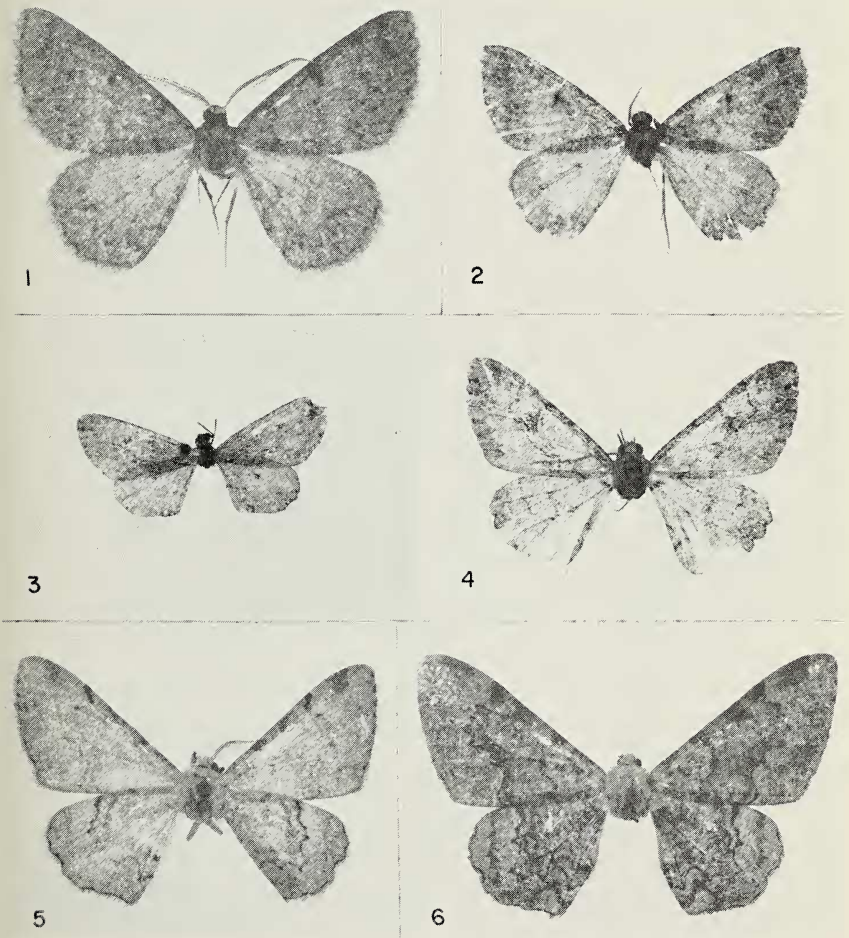
Under Surface of Wings: All wings pale gray, more or less irrorate with dark gray scales; costa of forewing, and some veins, pale brownish gray; without maculation except for discal dot on forewings, and with nebulous, dark gray subterminal band on forewings of some specimens.

Length of Forewing: 18 to 19 mm.; holotype, 18 mm.

FEMALE, SPRING GENERATION: Similar to male, or more suffused with dark gray scaling.

Length of Forewing: 14 to 19 mm.; allotype, 14 mm.

MALE, SUMMER GENERATION: Similar to male of spring generation but smaller, with front and upper surfaces of body and wings ochraceous, overlain with dark




Figs. 1, 2. *Pterospoda kinoi,* new species. 1. Holotype, male. 2. Paratype, male.

Fig. 3. *Morina daedalea,* new species, holotype.

Fig. 4. *Anacamptodes cerasta* Rindge, holotype.

Fig. 5. *Thyrinteina arnobia tephra,* new subspecies, holotype.

Fig. 6. *Thyrinteina arnobia picta,* new subspecies, holotype. All figures x1.5.

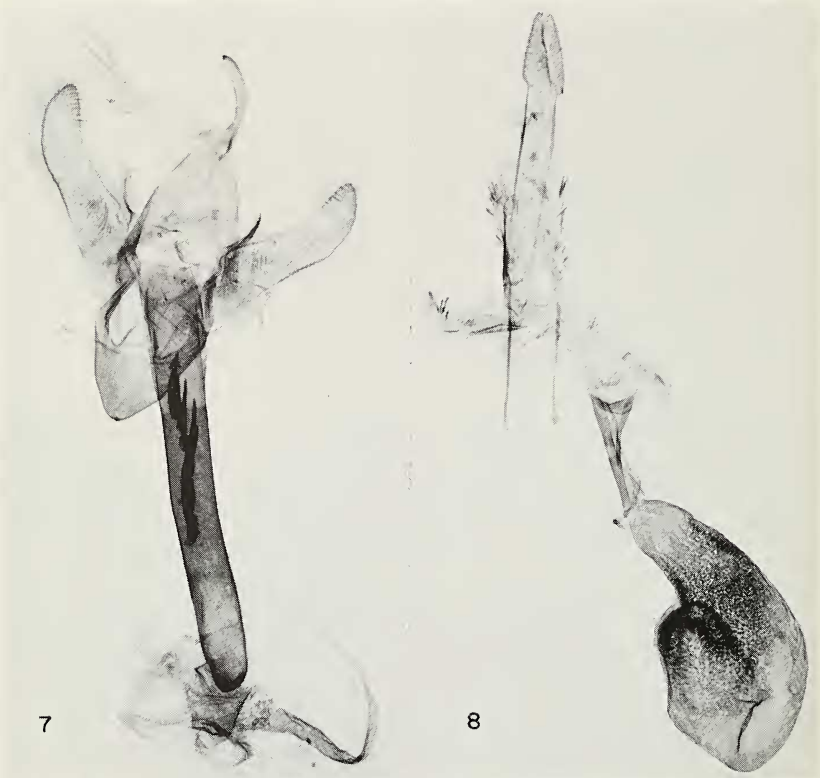
gray and grayish brown scales; terminal area of all wings dark gray or grayish brown; faint traces of pink in subterminal area and on veins. Under surface with definite subterminal band on forewings. (See fig. 2.)

Length of Forewing: 14 to 15 mm.

FEMALE, SUMMER GENERATION: Upper surfaces of thorax and abdomen and all wings dark grayish brown above; upper surface without maculation except for discal dot on forewings and for reddish brown subterminal band on all wings, sometimes obsolescent, and for traces of s. t. line. Under surface grayish brown, with outer portion of wings darker.

Length of Forewing: 15 to 16 mm.

MALE GENITALIA: Uncus elongate, curving; gnathos weakly sclerotized, anterior margin broad, flat; valves slender, apically curving, inner face with numerous slender setae; costa of valve with large, sclerotized process at base, extending about one-third of length of costa, roughly triangular in outline, but with apex curved inwardly, and with median ridge extending from apex to base of valve; transtilla represented by inwardly projecting lobes meeting at mid-line; anellus




Figs. 7, 8. Genitalia of *Pterospoda kinoi*, new species. 7. Holotype, male. 8. Allotype, female.

small, elliptical; aedeagus very long and slender, longer than combined lengths of uncus, tegumen, and saccus; vesica armed with row of heavy spines occupying about one-half length of aedeagus.

FEMALE GENITALIA: Sterigma elliptical, bluntly pointed anteriorly and flattened posteriorly, membranous, with small lunate sclerotized piece medially; ductus bursae sclerotized, elongate, weakly constricted medially, anterior end partly rotated; ductus seminalis arising dorsally from near posterior end of corpus bursae; latter large, increasing in width anteriorly, and with ventral swelling, central portion thickly set with numerous inwardly projecting spinose processes.

TYPES: Holotype, male: Mexico: Sonora: Bahia San Carlos: February 18, 1963 (P. H. Arnaud, Jr.), AMNH; allotype, female, same data but February 19, 1963 (AMNH). The genitalia of the holotype are mounted on slide F.H.R. No. 11,590; and of the allotype on F.H.R. No. 11,715. Paratypes, all from Mexico: same data as holotype, February 17, 19, 1963, three males (AMNH); Gulf of California: Isla San Marcos (27°13'N., 112°50'W.), March 28, 1962 (C. F. Harbison), six males and five females (San Diego Natural History Museum); Baja California Sur: Arroyo San Bartolo, November 13, 1961 (Cary-Carnegie Museum Expedition), three males and one female (CM); Baja California Sur: La Paz: Guaycura Hotel grounds, October 20, 1961 (Cary-Carnegie Museum Expedition), one female (CM).

REMARKS: A total of 21 specimens (13 males and eight females) and eight genitalic dissections (four males and four females) have been studied.

There is no doubt that the moths from these three localities belong to a single species, as the genitalia are so similar. The only question is whether the population on the peninsula should be accorded subspecific status or not. Until adequate material is obtained, captured throughout the year, it is thought advisable to place these differently colored moths as seasonal forms of the same species.

*Pterospoda kinoi* is closely related to *P. opuscularia* (Hulst), and can be distinguished therefrom by its darker color and less definitely defined maculation, as well as by the genitalia. The male structures of the present species can be recognized by the non-spinose costal process, and by the row of numerous spines in the vesica of the aedeagus. The female genitalia of *kinoi* lack the heavily sclerotized ostial ring of *opuscularia*, and have a much longer ductus bursae and a ventral swelling of the corpus bursae not present in *opuscularia*.

This species is named in honor of Father Eusebio Francisco Kino, the great explorer and missionary of Baja California and Sonora.

### *Syrrhodia decrepitaria* Hübner

*Syrrhodia decrepitaria* Hübner, 1823: 29, figs. 371, 372.

Two specimens were taken in Baja California Sur. This species occurs in much of South America, extending north as far as southern Texas. It is apparently not rare in Mexico.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Dec. 2, 1961, 1♂; Arroyo San Bartolo, Nov. 13, 1961, 1♂. (1♂ CM, 1♂ AMNH).

### *Thysanopyga carfinia* (Druce)

*Pachydia carfinia* Druce, 1893 (1891-1900): 136; 1893 (1881-1900), pl. 53, figs. 25, 26.

Druce described *carfinia* from specimens taken in Veracruz, Mexico, Guatemala, and Chiriqui, Panama. The species is known to occur in Chiapas and Oaxaca, Mexico, and in British Honduras.

SINALOA: 16 miles north of Mazatlan, Oct. 28, 1961, 1♀ (CM).

### *Thysanopyga* sp.

A study of the types, plus a designation of lectotypes, is necessary in the complex of small species that includes *nicetaria* Guenée, *cermala* Druce, and *oroanda* Druce, before a meaningful usage of names is possible. An examination of the genitalia shows that a number of species are more easily recognized by the genitalia than by maculation; the latter can be quite variable within a species.

SONORA: Navojoa, Oct. 21, 1961, 1♀.

SINALOA: Mazatlan: at motel, Oct. 24, 1961, 1♂; 5 miles west of Concordia, Nov. 2, 1961, 2♂, 5♀; 16 miles north of Mazatlan, Oct. 28, 29, 1961, 6♂, 10♀.

The specimens are in the following collections: 6♂, 12♀ CM; 3♂, 4♀ AMNH.

### *Chloraspilates bicoloraria* Packard

*Chloraspilates bicoloraria* Packard, 1876:212, pl. 13, fig. 40.

This species ranges from Texas to southern Nevada and southeastern California; in Mexico it is known from Coahuila, Chihuahua, and Sonora. The single specimen from the trip is a small, worn and faded male that has been determined largely on the basis of a study of its genitalia.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 26, 1961, 1♂ (CM).

*Fernaldella fimitaria angelata* Wright

*Fernaldella fimitaria angelata* Wright, 1923: 114.

Wright's type material of three males and one female came from Angeles Bay, Lower California (holotype and paratype), and from Guaymas, Sonora (allotype and paratype). The second paratype referred to has been examined and dissected, and its genitalia agree with the notes on the holotype genitalia kindly provided me by Dr. C. D. MacNeill. This population is apparently correctly placed as *fimitaria,* and not *partita.*

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 20 to Dec. 5, 1961, 5♂, 2♀; Bahia de Palmas, Oct. (without date) 1961, 1♂. (4♂, 1♀ CM; 2♂ 1♀ AMNH).

*Semiothisa punctolineata* (Packard)

*Macaria puncto-lineata* Packard, 1873: 64.

Packard described this species from Texas. It extends from that state across the southeastern portion of the United States to Florida. Specimens of this species, taken in Sinaloa, Sonora, and Baja California Sur by members of the expedition, are in the following collections: 7♂, 3♀ CM; 5♂, 5♀ AMNH.

SINALOA: 5 miles west of Concordia, Nov. 2, 1961, 6♂, 2♀; 16 miles north of Mazatlan, Oct. 28, 1961, 3♂; 18 miles north of Mazatlan, Oct. 29, 1961, 1♂, 1♀.

SONORA: Navojoa, Oct. 21, 1961, 2♂; Guaymas, Oct. 20, 1961, 2♀.
BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct 20, 1961, 2♀; Bahia de Palmas, Nov. 16, 1961, 1♀.

*Semiothisa errata* McDunnough

*Semiothisa errata* McDunnough, 1939: 252.

Two specimens of this moth, described from Arizona, were taken.
BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 20, Dec. 2, 1961, 1♂, 1♀. (1♂ CM; 1♀ AMNH).

*Semiothisa parcata* (Grossbeck)

*Sciagraphia parcata* Grossbeck, 1908: 26.

This species is common in Arizona. It also occurs in Nevada, Sonora, and Baja California Norte.

SONORA: Sonoyta, Oct. 17, 18, 1961, 3♂, 3♀; Guaymas, Oct. 20, 1961, 1♀.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 20, 1961, 1♀.

The specimens are in the following collections: 2♂, 3♀ CM; 1♂, 2♀ AMNH.

### *Semiothisa colorata* Grote

*Semiothisa colorata* Grote, 1883: 7.

*S. colorata* is one of the commoner species in the semi-arid portion of the southwestern United States, as it extends from southern California to western Texas. It is also known from Sonora and Baja California Norte.

SONORA: Sonoyta, Oct. 17, 18, 1961, 2♂, 7♀.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 20, Nov. 6, 1961, 2♀.

The specimens are in the following collections: 1♂, 5♀ CM; 1♂, 4♀ AMNH.

### *Semiothisa* sp., *?sublacteolata* (Hulst)

*Sciagraphia sublacteolata* Hulst, 1887: 189.

Hulst described this species from Dayton, Ohio; the few specimens that have been available for study were taken in Texas. The single specimen taken on the expedition is smaller and darker than the single Texas female before the author. The genitalia of these two moths are very similar. Pending receipt of adequate material, the specimen is tentatively referred to this species.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 31, 1961, 1♀. (CM).

### *Semiothisa pictipennata* (Hulst)

*Macaria pictipennata* Hulst, 1898: 162.

This species occurs from western Texas to California, and it is known from Baja California Norte.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 20 to Dec. 5, 1961, 7♂, 4♀. (3♂, 2♀ CM; 4♂, 2♀ AMNH).

### *Semiothisa nigricomma* Warren

*Semiothisa nigricomma* Warren, 1904: 127.

Warren described this species from Guadalajara, Jalisco. It extends north into southern Texas.

SINALOA: 16 miles north of Mazatlan, Oct. 28, 1961, 2♀; 18 miles north of Mazatlan, Oct. 29, 1961, 4♂,3♀. (2♂, 3♀ CM; 2♂, 2♀ AMNH).

### *Semiothisa* sp.

Six specimens were taken of a species that is allied to *nigricomma;* this moth is also known from southern Arizona.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Nov. 2, 5, 1961, 1♂, 2♀; Arroyo San Bartolo, Nov. 13, 1961, 1♂, 2♀. (1♂, 2♀ CM; 1♂, 2♀ AMNH).

### *Semiothisa sirenata* McDunnough

*Semiothisa sirenata* McDunnough, 1939: 254.

This species was described from Arizona; it also occurs in southern California, southern Nevada, and Sonora.

SONORA: Navojoa, Oct, 21, 1961, 3♂; Sonoyta, Oct. 17, 1961, 2♀.

BAJA CALIFORNIA SUR: Bahia de Palmas, Oct. 24, 1961, 1♂; La Paz: Guaycura Hotel grounds, Oct. 20, Nov. 6, 1961, 2♀.

The specimens are in the following collections: 3♂, 2♀ CM; 1♂, 2♀ AMNH.

### *Semiothisa cyda* (Druce)

*Eubolia cyda* Druce, 1892 (1891-1900): 177; 1893 (1881-1900), pl. 58, fig. 4 (lectotype).

*Semiothisa cyda:* Rindge, 1959b: 8, figs. 2, 6, 10 (male and female genitalia).

This species is very common and widely ranging throughout the southwestern United States and much of Mexico. See Rindge (1959b) for a complete list of the states involved.

SONORA: Sonoyta, Oct. 17, 18, 1961, 6♂, 14♀.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 20 to Dec. 6, 1961, 25♂, 28♀.

The specimens are in the following collections: 15♂, 21♀ CM; 16♂, 21♀ AMNH.

### *Semiothisa melanderi* Sperry

*Phasiane s-signata* form *ballandrata* Wright, 1923: 115.

*Semiothisa melanderi* Sperry, 1948: 58. Rindge, 1959b: 13, figs. 4, 8, 11 (male and female genitalia).

This species looks almost exactly like *S. cyda*. Specimens of the two were captured together at La Paz. Good differences are present in the ventral plate of the male, as well as in the genitalia of both species. It has been known heretofore from Arizona and Baja California Norte.

Wright's older "form" name is not used, following Article 45 of the International Code of Nomenclature.

SONORA: Navojoa, Oct. 21, 1961, 1♂, 3♀; Guaymas, Oct. 20, 1961, 1♀. 4♂, 12♀.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 19 to Dec. 6, 1961, 4♂, 12♀.

The specimens are in the following collections: 2♂, 10♀ CM; 3♂ 6♀ AMNH.

### *Semiothisa hypaethrata* (Grote)

*Phasiane hypaethrata* Grote, 1881: 167.

This species is known from southern Arizona and southwestern New Mexico.

SONORA: Sonoyta, Oct. 17, 1961, 2♀; Guaymas, Oct. 20, 1961, 1♂.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 19 to Nov. 6, 1961, 3♂, 4♀; Bahia de Palmas, Oct. 24, 1961, 1♀.

The specimens are in the following collections: 3♂, 3♀ CM; 1♂, 4♀ AMNH.

### *Semiothisa* sp.

Three worn females represent a species unknown to me; they have the seventh sternite sclerotized.

BAJA CALIFORNIA SUR: San Jose del Cabo, Nov. 17, 1961, 2♀; Bahia de Palmas, Nov. 16, 1961, 1♀. (2♀ CM; 1♀ AMNH.)

### *Prophasiane* sp.

A single female was taken that is related to *mendicata* Hulst.

BAJA CALIFORNIA SUR: Bahia de Palmas, Nov. 17, 1961. 1♀ (CM).

*Itame sobriaria* Barnes and McDunnough, new status

*Itame graphidaria sobriaria* Barnes and McDunnough, 1917: 239, pl. 24, fig. 9.

This name was proposed as an Arizona subspecies of the Texan *graphidaria* Hulst. The two are similar in appearance but the genitalia of both sexes are quite distinct. This species is also known from New Mexico and Chihuahua.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 20 to Nov. 10, 1961, 3♂, 4♀. (2♂, 2♀ CM; 1♂, 2♀ AMNH).

*Glaucina eupetheciaria osiana* (Druce)

*Eupithecia* (?) *osiana* Druce, 1893 (1891-1900): 147; 1893 (1881-1900), pl. 55, figs. 5, 6.

*Glaucina eupetheciaria osiana:* Rindge, 1959a: 294, pl. 24, figs. 8, 9; text fig. 24.

A number of specimens of both sexes were taken in the Central Gulf Coast area, and these are tentatively assigned to the Sonoran subspecies of *eupetheciaria.* Unfortunately most of the specimens were rubbed, so that an accurate comparison with Sonoran examples is not feasible. The Baja California examples seem to be paler than *osiana* but more material is needed before this can be ascertained for certain.

SONORA: Navojoa, Oct. 21, 1♂.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 20, 31, Nov. 5, 8, Dec. 6, 1961, 5♂, 4♀; Bahia de Palmas, Oct. 24, Nov. 16, 1961, 8♀; San Jose del Cabo, Nov. 17, 1961, 1♀.

The specimens are in the following collections: 4♂, 6♀ CM; 2♂, 7♀ AMNH.

*Glaucina anomala* Rindge

*Glaucina anomala* Rindge, 1959a: 341, pl. 27, figs. 10, 11; text figs. 31, 70, 103.

Four specimens of this anomalous species were taken in the Central Gulf Coast area near the sea. It has been previously known from southeastern Arizona and the lower portions of the Sierra Madre Occidental of southern Sonora.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 20, 23, 1961, 1♂, 1♀; Bahia de Palmas, Nov. 12, 16, 1961, 2♂. (1♂, 1♀ CM; 2♂ AMNH).

*Synglochis perumbraria* Hulst

*Synglochis perumbraria* Hulst, 1896: 352. Rindge, 1959a: 343, pl. 27, figs. 12, 13; text figs. 33-35, 71, 104.

This species occurs throughout the southwestern United States; in Mexico it is known to occur in Coahuila and Baja California Norte. The five specimens taken are the first ones examined from Sonora.

SONORA: Sonoyta, Oct. 17, 18, 1961, 2♂, 2♀; 10 miles east of San Luis, Oct. 17, 1961, 1♀. (1♂, 2♀ CM; 1♂, 1♀ AMNH).

*Eubarnesia ritaria ritaria* (Grossbeck)

*Cedaria ritaria* Grossbeck, 1910: 207.

*Eubarnesia ritaria ritaria:* Rindge, 1959a: 346, pl. 27, figs. 14, 15; text figs. 36, 72, 105.

One specimen was taken near the Arizona border in Sonora. Nominate *ritaria* is found in Arizona and western Texas.

SONORA: Sonoyta, Oct. 17, 1961, 1♂ (CM).

*Eubarnesia ritaria arida* Rindge

*Eubarnesia ritaria arida* Rindge, 1959a: 347, pl. 27, figs. 16, 17; text fig. 36.

This paler subspecies is known to occur in southern California, northern Sonora, and Baja California Norte. The present records extend its distribution much farther south on the peninsula.

BAJA CALIFORNIA SUR: Bahia de Palmas, Oct. 24, Nov. 16, 1961, 3♂; La Paz: Guaycura Hotel grounds, Oct. 26, Nov. 1, 6, 8, 1961, 2♂, 3♀. (3♂, 1♀ CM; 2♂, 2♀ AMNH).

**Morina daedalea,** new species
Figs. 3, 9, 10

This species can be recognized by the presence of prominent discal spots on all wings above, and by the genitalia of both sexes. It is endemic to Baja California Sur.

MALE: Head with vertex white or ochraceous white; front ochraceous around large truncate tubercle; palpi ochraceous. Thorax ochraceous white above, paler below; legs ochraceous brown, with all tarsi darker. Abdomen ochraceous above, with white and ochraceous brown scales; paler below.

Upper Surface of Wings: Forewings grayish white, with ochraceous and brown scaling; cross lines dark brown, narrow; t. a. line crossing costa at right angle, then swinging basad and paralleling costa to inner margin; discal spot large, dark brown, circular; t. p. line extending from about vein $R_5$ and proceeding, with two basal bends, to inner margin just basad of its middle; large patch of ochraceous brown scales distad of t. p. line above inner margin, and continuing anteriorly as shade band; subterminal and terminal areas with some brown scaling in cells; dark intravenular dots present along wing margin; fringe concolorous with wing. Hind wings white, with scattered brown scales, particularly along outer and anal margins; discal dot dark grayish brown, prominent; traces of intradiscal, extradiscal and subterminal lines present at anal margin and extending part way across wing; terminal line dark, narrow, obsolescent.

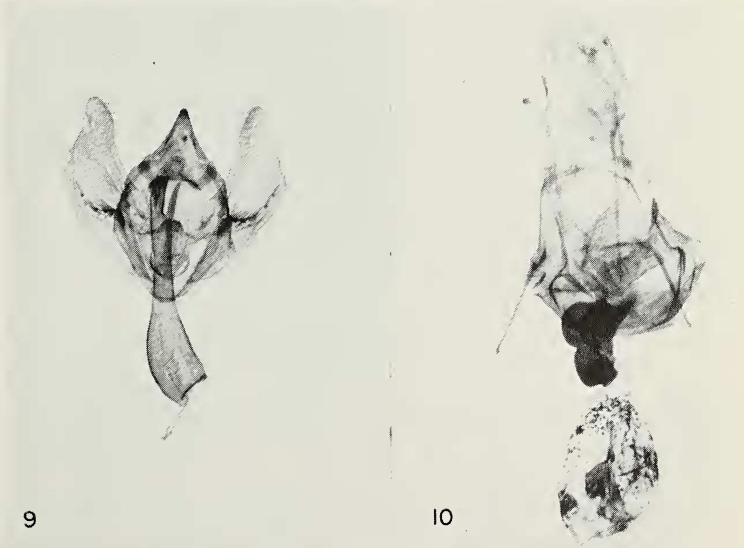
Under Surface of Wings: Grayish white, with variable number of dark brown and ochraceous scales; without maculation except for large, brownish black discal dots, and narrow, dark terminal line.

Length of Forewing: 10 to 12 mm.; holotype, 10.5 mm.

FEMALE: Similar to male, as far as can be seen.

Length of Forewing: 10 mm. (allotype).

MALE GENITALIA: Uncus elongate, triangular, with sides weakly concave; gnathos with large median enlargement bluntly pointed or rounded; valves with sacculus broad, lightly sclerotized, and with raised ridge having from six to 12 heavy short, well-spaced spines; anellus with large, sclerotized, rounded anterior part, becoming narrowed medially and with posterior margin rounded; aedeagus longer than combined lengths of uncus, tegumen, and saccus, posterior end bifid, with narrow, heavily sclerotized tine-like process and wider, hollow, less heavily sclerotized projection, and with anterior end broadly swollen; vesica unarmed.




Figs. 9, 10. Genitalia of *Morina daedalea*, new species. 9. Holotype, male. 10. Allotype, female.

FEMALE GENITALIA: Sterigmal area broad, sclerotized, anterior margin bilobate; ductus bursae short, broad, curved, and with large swelling on left side; ductus seminalis arising from posterior end of corpus bursae on right side; corpus bursae globular, membranous, with large dorsal signum having transverse ridge.

TYPES: Holotype, male, and allotype, female, Guaycura Hotel grounds, La Paz, Baja California Sur, Mexico, October 31, 1961, Cary-Carnegie Museum Expedition (CM). The genitalia of the holotype are on slide F.H.R. No. 12,601, and of the allotype on F.H.R. No. 14,580. Paratypes: same data as types, November 5 and December 1, 1961, two males (CM; AMNH).

REMARKS: The male genitalia of *daedalea* can be separated from those of *M. coniferarum* Grossbeck by the much sparser spining on the sacculus and by the bifurcate apex of the aedeagus. In the female genitalia, the present species can be recognized by the wider sclerotized sterigma and by the thicker, curved, and swollen ductus bursae.

The description of the adults may have to be somewhat modified when additional material comes to hand.

### *Anavitrinella pampinaria* (Guenée)

*Boarmia pampinaria* Guenée, 1857: 245.

This species occurs from coast to coast in the United States, and south into Mexico.

SONORA: Navojoa, Oct. 21, 1961, 1♂ (CM).

### *Anavitrinella* sp.

This species is yellowish brown, and has a curved t. p. line; it is placed in *Anavitrinella* on the basis of the genitalic structures. No name is being given to it at this time, pending a revisionary study of this genus.

BAJA CALIFORNIA SUR: Arroyo San Bartolo, Nov. 1, 13, 1961, 1♂, 2♀; La Paz: Guaycura Hotel grounds, Nov. 6, 8, 1961, 2♀; Bahia de Palmas, Nov. 17, 1961, 1♀. (4♀ CM; 1♂, 1♀ AMNH.)

### *Anacamptodes pseudoherse* Rindge

*Anacamptodes pseudoherse* Rindge, 1966: 218, pl. 24, fig. 8; text figs. 27, 47.

The two specimens that were taken have been made paratypes. This species is widely distributed over much of Mexico.

SINALOA: Los Mochis, Oct. 22, 1961, 1♀ (CM).

BAJA CALIFORNIA SUR: Arroyo San Bartolo, Nov. 13, 1961, 1♂ (CM).

*Anacamptodes cerasta* Rindge
Fig. 4

*Anacamptodes cerasta* Rindge, 1966: 221, pl. 24, fig. 11; text figs. 28, 48.

This species is endemic in the Territory of Baja California, and has been captured only at La Paz.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 20, 23, 31, Nov. 5, 8, Dec. 1, 6, 1961, 7♂, 4♀. (4♂, 2♀ CM; 3♂, 2♀ AMNH).

**Thyrinteina arnobia picta,** new subspecies
Fig. 6

*Thyrinteina arnobia phala* Rindge, 1961: 135 *(partim).* Comstock and Vazquez, "1963" [1964]: 263, fig. 18.

In this population, found in western Mexico and Guatemala, the wings of the males are predominately brown.

MALE: Head, thorax and abdomen similar to those of nominate subspecies, but with last two tending to have more dark scaling.

Upper Surface of Wings: Forewings, ground color gray, heavily and evenly overlain with brown and dark brown scales, the latter tending to be concentrated in median area. Hind wings concolorous with forewings, or with ground color more prominent in subterminal and terminal areas; maculation of all wings like that of nominate subspecies.

Under Surface of Wings: All wings unicolorous dark brown or dark grayish brown; either without maculation or with t. p. and extradiscal lines weakly represented.

Length of Forewing: 16 to 19 mm.; holotype, 19 mm.

FEMALE: Similar to that of *phala* but tending to be slightly more suffused with dark scales, and with s. t. line slightly stronger.

Length of Forewing: 27 mm. (allotype).

MALE GENITALIA: Similar to those of *phala.*

FEMALE GENITALIA: Not examined.

TYPES: Holotype, male, Agua del Obispo, Guerrero, Mexico, July, 1932 (C. C. Hoffmann; paratype of *phala* Rindge) (AMNH); allotype, female, Puerto Vallarta, Jalisco, Mexico, emerged from pupa September 15, 1957 (J. A. Comstock) (AMNH). The genitalia of the holotype are on slide F.H.R. No. 8987. Paratypes, all from Mexico: same data as holotype, one male (AMNH); "La Granja," Chiapas, July, 1930 (C. C. Hoffmann; paratype of *phala* Rindge), one male (AMNH); 5 miles west of Concordia, Sinaloa, November 2, 1961 (Cary-Carnegie Museum Expedition), two males (AMNH, CM); 16 miles north of Mazatlan, Sinaloa, October 28, 1961 (Cary-Carnegie Museum Expedition), one male, CM. (4♂, 1♀ AMNH; 2♂ CM).

REMARKS: Seven specimens and one genitalic dissection were examined. Typical *phala* is characterized by the white upper surface of the wings in the male (Rindge, 1961, pl. 22, fig. 2). It occurs from southern Texas through eastern Mexico and at least as far south as British Honduras. In Mexico it is known from the states of San Luis Potosi, Veracruz, Tabasco, and Yucatan, and from Alta Verapaz in Guatemala. Included in the type series were four dark-brown specimens from Guerrero and Chiapas. With the receipt of additional material from western Mexico it becomes apparent that these brown specimens form a distinct population in that part of the country.

## **Thyrinteina arnobia tephra,** new subspecies
Fig. 5

In Baja California Sur there occurs a population in which the upper surface of the wings of the males is pale gray, overlain with dark scales, and is thus quite distinct from the other two known populations from Mexico.

MALE: Head, thorax, and abdomen similar to those of nominate subspecies, but with abdomen tending to have more dark scales.

Upper Surface of Wings: Forewings with ground color pale gray, lightly overlain with grayish brown and dark-brown scales. Hind wings concolorous with, or slightly paler than, forewings; maculation of all wings like that of nominate subspecies.

Under Surface of Wings: All wings varying in color from gray to dark-grayish brown, and overlain with grayish-brown scales; maculation varying from having t. p. and extradiscal lines present to being obsolescent.

Length of Forewing: 15 to 20 mm.; holotype, 16 mm.

FEMALE: Similar to female of *phala*.

Length of Forewing: 26 to 32 mm.; allotype, 28 mm.

MALE GENITALIA: Similar to those of *phala* but with projections of juxta slightly longer and more slender.

FEMALE GENITALIA: Not examined.

TYPES: Holotype, male, Arroyo San Bartolo, Baja California Sur, Mexico, November 15, 1961 (CM); allotype, female, same data, November 1, 1961 (CM). The genitalia of the holotype are on slide F.H.R. No. 12,573. Paratypes, all from Baja California Sur: same data as holotype, various dates between November 1 and 15, 1961, eight males (CM; AMNH); Guaycura Hotel grounds, La Paz, various dates between October 20 and December 2, 1961, 11 males (CM; AMNH); Bahia de Palmas, various dates between October 24 and November 17, 1961, five males and two females (CM; AMNH); San Jose del Cabo, November 17, 1961, one male (CM); Puerto Chileno, November 25, 1961, one female (CM). All of the above specimens were taken on the Cary-Carnegie Museum expedition. (13♂, 1♀ CM; 12♂, 2♀ AMNH.)

REMARKS: Thirty specimens and two genitalic dissections have been studied. This population is quite distinct from any of the described ones, and can be recognized by the light-gray coloration of the upper surface of the wings of the males.

*Stergamataea delicata dolliata* Grossbeck

*Stergamataea dolliata* Grossbeck, 1908: 30.

This population was described from Arizona; it also occurs in western Texas. The single specimen taken by the members of the expedition tends to be slightly darker and more mottled than are most Arizona males. More material is needed before we can ascertain whether or not these differences are constant.

BAJA CALIFORNIA SUR: Arroyo San Bartolo, Nov. 15, 1961, 1♂ (CM).

*Nematocampa* sp., *?reticulata* Butler

*Nematocampa reticulata* Butler, 1881: 323.

Butler described *reticulata* from the Amazons of Brazil, and Druce [1892 (1891-1900): 43] gave Mexican records in the states of Sinaloa, Veracruz, and Tabasco. A careful genitalic study and revision of the group is necessary before names can be safely applied in this genus.

SINALOA: 5 miles west of Concordia, Nov. 2, 1961, 1♂ (CM).

*Stenaspilates meskearia albomacularia* (Hy. Edwards)

*Azelina albomacularia* Hy. Edwards, 1882: 130.

The four specimens that were taken are smaller in size (length of forewing for the males, 12-13 mm., for the females, 12 mm.) than are most of the examples from Arizona and southern California. However, some of the individuals from the latter state are as small. The range of color variation of the upper surface of the wings in *albomacularia* is rather extensive, and the La Paz specimens are well within this range.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Oct. 20, 26, Nov. 8, Dec. 5, 1961, 2♂, 2♀. (1♂, 1♀ CM; 1♂, 1♀ AMNH).

*Pero lignata* (Warren)

*Pergama lignata* Warren, 1897: 499.

Specimens bearing this name are from South America, Costa Rica, Guatemala, and southern Mexico.

SINALOA: 5 miles west of Concordia, Nov. 2, 1961, 1♂; 16 miles north of Mazatlan, Oct. 28, 1961, 1♀; 18 miles north of Mazatlan, Oct. 29, 1961, 1♀. (1♂, 1♀ CM; 1♀ AMNH).

*Pero melissa* (Druce)

*Azelina melissa* Druce, 1892 (1891-1900): 63; 1892 (1881-1900), pl. 47, fig. 12.

Druce described this species from Jalapa, Veracruz, Mexico.

BAJA CALIFORNIA SUR: Arroyo San Bartolo, Nov. 13, 15, 1961, 2♀. (1♀ CM; 1♀ AMNH).

*Philtraea elegantaria* (Hy. Edwards)

*Zerene elegantaria* Hy. Edwards, 1881: 121.

This species was described from Arizona.

BAJA CALIFORNIA SUR: La Paz: Guaycura Hotel grounds, Dec. 2, 1961, 1♂; Bahia de Palmas, Nov. 17, 1961, 1♀; Puerto Chileno, Nov. 24, 1961, 1♀; San Jose del Cabo, Nov. 17, 1961, 1♀; Arroyo San Bartolo, Nov. 13, 1961, 2♀; Sierra Laguna: Rancho San Bernardo, Nov. 13, 1961, 2♀. (1♂, 4♀ CM; 3♀ AMNH.)

*Apicia melenda* Druce

*Apicia melenda* Druce, 1892 (1891-1900): 39; 1892 (1881-1900), pl. 44, figs. 23, 24.

Druce described *melenda* from southern Mexico (Jalisco, Guerrero, Tabasco, and Veracruz), Guatemala, and Panama.

SINALOA: 5 miles west of Concordia, Nov. 2, 1961, 1♂ (CM).

*Apicia vibicaria* (Cramer)

*Phal. Geomet. vibicaria* Cramer, 1775: 112, pl. 71D.

This species is of wide occurrence in South and Central America, going as far north as southern Mexico.

SINALOA: 16 miles north of Mazatlan, Oct. 28, 1961, 1♀ (CM).

*Halesa meticulata* (Guenée)

*Drepanodes meticulata* Guenée, 1857: 68.

This widely ranging species occurs from Brazil and Peru, through northern South America and Central America, into Mexico. In the last country, specimens have been examined from the states of Chiapas, Oaxaca, Hidalgo, and Veracruz.

SINALOA: 5 miles west of Concordia, Nov. 2, 1961, 4♂; 16 miles north of Mazatlan, Oct. 28, 1961, 1♂.

SONORA: Navojoa, Oct. 21, 1961, 1♂.

The specimens are in the following collections: 4♂ CM; 2♂ AMNH.

## *Drepanodes epionata* Guenée

*Drepanodes epionata* Guenée, 1857: 68.

Guenée described this species from Haiti, and it is known from the other islands of the Greater Antilles. Specimens are also placed under this name from Central and northern South America; and it is known from southern Texas.

SINALOA: 18 miles north of Mazatlan, Oct. 29, 1961, 1♂ (CM).

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